IN THE CLAIMS

Please cancel claims 65-92 and 119-130 without prejudice.

Please amend claims 53-54, 59, 61-63, and 114 as follow below.

Please add new claims 131-153 as follow below.

This listing of claims will replace all prior versions, and listings, of claims in the application:

MARKED UP VERSION OF CLAIMS

1. (Original) A fiber optic module comprising:

one or more electro-optic transducers to convert optical signals into electrical signals or electrical signals into optical signals;

a plurality of module contacts to couple electrical signals to the one or more electro-optic transducers or to receive electrical signals from the one or more electro-optic transducers, the plurality of module contacts to couple electrical signals into a host printed circuit board or to receive electrical signals from the host printed circuit board; and

an elastomer having spaced apart conductors to couple between host contacts electrically coupled to the host printed circuit board and the plurality of module contacts

without shorting to each other, the spaced apart conductors to couple electrical signals between the host printed circuit board and the fiber optic module.

2. (Original) The fiber optic module of claim 1 wherein,

the elastomer having spaced apart conductors is an interposer or z-connector.

3. (Original) The fiber optic module of claim 1 wherein,

the spaced apart conductors of the elastomer are micro-filaments.

4. (Original) The fiber optic module of claim 1 wherein,

the spaced apart conductors of the elastomer are metal columns.

5. (Original) The fiber optic module of claim 1 further comprising:

a compression stop to avoid over-compression of the elastomer.

6. (Original) The fiber optic module of claim 1 further comprising:

a housing to house the one or more electro-optic transducers and the module contacts and provide external access thereto.

7. (Original) The fiber optic module of claim 6 wherein,

the housing is shielded to reduce electro-magnetic interference (EMI) generated by the one or more electro-optic transducers or other electronic devices housed therein.

8. (Original) The fiber optic module of claim 6 wherein,

the housing has a module retention stop to couple to a latch of a module receptacle of the host printed circuit board and hold the fiber optic module engaged within.

9. (Original) The fiber optic module of claim 6 wherein,

the housing has a compression stop to contact a surface to avoid over-compression of the elastomer.

10. (Original) The fiber optic module of claim 9 wherein,

the surface is an inner surface of a back-side of a module receptacle of the host printed circuit board.

11. (Original) The fiber optic module of claim 9 wherein,

the surface is a top surface of the host printed circuit board.

12. (Original) The fiber optic module of claim 1 further comprising:

a means to provide sequential electrical connections during physical insertion of the fiber optic module into a host system.

13. (Original) The fiber optic module of claim 12 wherein

the means to provide sequential electrical connections to further provide sequential electrical disconnections during physical removal of the module from a host system.

14. (Original) The fiber optic module of claim 12 wherein

the means to provide sequential electrical connections is a ground pin and a power pin.

15. (Original) The fiber optic module of claim 12 wherein

the means to provide sequential electrical connections

is a ground pad and a power pad.

16. (Original) The fiber optic module of claim 15 wherein
the ground pad and the power pad extend beyond signal pads.

17. (Original) The fiber optic module of claim 16 wherein
the ground pad and the power pad are thicker than the signal pads.

18. (Original) The fiber optic module of claim 15 wherein
the ground pad and the power pad extend beyond signal pads and the ground pad extends beyond the power pad in order to make a ground connection prior to a power connection.

19. (Original) The fiber optic module of claim 1 wherein,
the elastomer is compressible to couple between the host contacts and the module contacts.

20. (Original) The fiber optic module of claim 19 wherein,

the host contacts are mechanically and electrically coupled to the host printed circuit board.

21. (Original) The fiber optic module of claim 19 wherein,

the host contacts are part of an electrical connector, the electrical connector mechanically and electrically coupled to the host printed circuit board.

22. (Original) The fiber optic module of claim 19 wherein,

the spaced apart conductors are compressible.

23. (Original) The fiber optic module of claim 6 wherein,

the housing has a release lever with a catch to couple to a latch of a module receptacle of the host printed circuit board and to retain the fiber optic module therein.

24. (Original) A fiber optic module comprising:

means for converting optical signals into electrical signals or electrical signals into optical signals;

means for coupling electrical signals into and out of the means for converting optical signals into electrical signals; and

a compression means having spaced apart conductors to

couple between the means for coupling electrical signals into and out of the means for converting optical signals into electrical signals and a means for coupling electrical signals into and out of a host printed circuit board, the plurality of spaced apart conductors spaced apart to avoid shorting to each other.

25. (Original) The fiber optic module of claim 24 wherein

the means for converting optical signals into electrical signals is one or more electro-optic transducers.

26. (Original) The fiber optic module of claim 24 further comprising:

a means for providing sequential electrical connections during physical insertion of the fiber optic module into a host system.

27. (Original) The fiber optic module of claim 26 wherein

the means for providing sequential electrical connections provides for sequential electrical disconnection during physical removal of the fiber optic module from the host system.

28. (Original) The fiber optic module of claim 26

wherein

the means for providing sequential electrical connections is a power pin and a ground pin.

29. (Original) The fiber optic module of claim 26 wherein

the means to provide sequential electrical connections is a ground pad and a power pad.

30. (Original) The fiber optic module of claim 24 wherein

the compression means is an interposer having an anisotropic electrically conductive elastomer filled with conductive particles or micro-filaments.

31. (Original) The fiber optic module of claim 24 wherein

the compression means is an interposer having an anisotropic electrically conductive elastomer filled with conductive columns.

32. (Original) The fiber optic module of claim 31 wherein

the conductive columns are metal columns.

33. (Original) The fiber optic module of claim 24

wherein,

the spaced apart conductors of the compression means are compressible.

34. (Original) A fiber optic module comprising:

one or more optoelectronic devices to convert electrical signals into optical signals or to convert optical signals into electrical signals or both;

a first guide slot to receive a first guide tab of a receptacle and to guide the fiber optic module into the receptacle; and

a first stop slot integral with the first guide slot, the first stop slot to receive the first guide tab and to stop further insertion of the fiber optic module into the receptacle.

35. (Original) The fiber optic module of claim 34 wherein

the first guide tab is engaged with the first stop slot by a force of a spring in the receptacle.

36. (Original) The fiber optic module of claim 34 further comprising:

one or more contact pads to electrically couple to the one or more optoelectronic devices,

an elastomer including spaced apart conductors, the

elastomer to compress and to electrically couple between the one or more contact pads of the fiber optic module and one or more contact pads of a host printed circuit board.

37. (Original) The fiber optic module of claim 36 wherein

the elastomer is compressed and the first guide tab is engaged with the first stop slot by a force of a spring in the receptacle.

38. (Original) The fiber optic module of claim 36 wherein

the spaced apart conductors are conductive columns.

39. (Original) The fiber optic module of claim 36 wherein

the spaced apart conductors are metal columns.

40. (Original) The fiber optic module of claim 36 wherein

the spaced apart conductors are micro-filaments.

41. (Original) The fiber optic module of claim 36 wherein

the spaced apart conductors are conductive particles.

42. (Original) The fiber optic module of claim 34 further comprising:

a compression stop to prevent over-compression of the elastomer.

43. (Original) The fiber optic module of claim 34 wherein

the first guide slot and first stop slot are in first side of the fiber optic module,

and the fiber optic module further comprises:

a second guide slot to receive a second guide tab of the receptacle and to guide the fiber optic module into the receptacle;

a second stop slot integral with the second guide slot, the second stop slot to receive the second guide tab and to stop further insertion of the fiber optic module into the receptacle; and,

wherein the second guide slot and the second stop slot are in a second side of the fiber optic module opposite the first side.

44. (Original) The fiber optic module of claim 43 further comprising:

one or more contact pads to electrically couple to the one or more optoelectronic devices,

an elastomer including compressible spaced apart conductors, the elastomer to compress and to electrically couple between the one or more contact pads of the fiber optic module and one or more contact pads of a host printed circuit board.

45. (Original) The fiber optic module of claim 44 further comprising:

a compression stop to prevent over-compression of the elastomer.

46. (Original) A fiber optic module comprising:

one or more optoelectronic devices to convert electrical signals into optical signals or to convert optical signals into electrical signals or both;

a housing to house the one or more optoelectronic devices, the housing including a first guide tab and a second guide tab;

the first guide tab to engage a first slot of a receptacle and to guide the fiber optic module into the receptacle; and

the second guide tab to engage a second slot of the receptacle and to guide the fiber optic module into the receptacle.

47. (Original) The fiber optic module of claim 46

wherein

the first guide tab to further engage a first stop slot in the receptacle by a force of a spring in the receptacle.

48. (Original) The fiber optic module of claim 47 wherein

the first stop slot to stop further insertion of the fiber optic module into the receptacle.

49. (Original) The fiber optic module of claim 47 further comprising:

one or more contact pads to electrically couple to the one or more optoelectronic devices,

an elastomer including spaced apart conductors, the elastomer to compress and to electrically couple between the one or more contact pads of the fiber optic module and one or more contact pads of a host printed circuit board.

50. (Original) The fiber optic module of claim 49 wherein

the first stop slot to allow compression of the elastomer and electrical coupling between the one or more contact pads of the fiber optic module and the one or more contact pads of the host printed circuit board.

51. (Original) The fiber optic module of claim 49

further comprising:

a power pin extending beyond the one or more contact pads; and

a ground pin extending beyond the power pin and the one or more contact pads,

the power pin and ground pin to couple to a power socket and a ground socket to provide sequencing of electrical connections for hot pluggability.

52. (Original) The fiber optic module of claim 47 further comprising:

one or more contact pads to electrically couple to the one or more optoelectronic devices,

an elastomer including spaced apart conductors, the elastomer to compress and to electrically couple between the one or more contact pads of the fiber optic module and one or more contact pads of an electrical connector coupled to a host printed circuit board.

53. (Currently Amended) The fiber optic module of claim 52 further comprising:

a power pin extending beyond the one or more contact pads; and

a ground pin extending beyond the power pin and the one or more contact pads,

the power pin and the ground pin to respectively couple

to a power socket and a ground socket of the electrical connector to provide sequencing of electrical connections for hot pluggability.

54. (Currently Amended) A fiber optic module comprising:

a housing;

one or more opto-electronic devices in the housing to convert between optical signals and electrical signals;

a plurality of signal contacts to couple electrical signals to the one or more opto-electronic devices or to receive electrical signals from the one or more opto-electronic devices;

an elastomer having spaced apart conductors to couple to the plurality of ~~module~~ signal contacts; and

a retention stop coupled to the housing, the retention stop to couple to a latch of a module receptacle to retain the fiber optic module therein.

55. (Original) The fiber optic module of claim 54 wherein,

the elastomer having spaced apart conductors is an interposer.

56. (Original) The fiber optic module of claim 54 wherein,

the spaced apart conductors of the elastomer are micro-filaments.

57. (Original) The fiber optic module of claim 54 wherein,

the spaced apart conductors of the elastomer are metal columns.

58. (Original) The fiber optic module of claim 54 further comprising:

a compression stop to avoid over-compression of the elastomer.

59. (Currently Amended) The fiber optic module of claim 54 wherein

the housing provides external access to the plurality of ~~module~~ signal contacts.

60. (Original) The fiber optic module of claim 54 wherein,

the housing is shielded to reduce electro-magnetic interference (EMI).

61. (Currently Amended) The fiber optic module of claim 54 further comprising:

a power contact extending beyond the plurality of

signal contacts; and

a ground contact extending beyond the power contact and the plurality of signal contacts,

wherein the power contact and the ground contact to respectively make a power electrical connection and a ground electrical connection prior to the plurality of signal contacts making a signal electrical connection to provide sequencing of electrical connections for hot pluggability.

62. (Currently Amended) The fiber optic module of claim 61, wherein ~~further comprising:~~

the power contact and the ground contact are pins and the plurality of signal contacts are a plurality of pads.

63. (Currently Amended) The fiber optic module of claim 61, wherein ~~further comprising:~~

the power contact and the ground contact are pads and the plurality of signal contacts are a plurality of pads.

64. (Original) The fiber optic module of claim 54 further comprising:

at least one release lever having a catch to engage an opening in at least one latch of the module receptacle.

65-92. (Canceled)

93. (Original) A method of making electrical connections for a fiber optic module, the method comprising:

inserting the fiber optic module having module contacts and an elastomer into a cage;

applying a force to the fiber optic module to compress the elastomer and form electrical connections; and

stopping the compression of the elastomer.

94. (Original) The method of claim 93 wherein

the elastomer having spaced apart conductors to couple between the module contacts and host contacts of a host printed circuit board without shorting to each other, the spaced apart conductors to couple electrical signals between the host printed circuit board and the fiber optic module.

95. (Original) The method of claim 93 wherein

prior to applying the force, the method further comprises,

making a ground electrical connection; and

making a power electrical connection, the ground and power electrical connection to provide hot pluggability.

96. (Original) The method of claim 93 further comprising

retaining the fiber optic module in position to

maintain compression of the elastomer and the electrical connections.

97. (Original) A method of engaging a fiber optic module into a host system, the method comprising:

engaging a guide tab of the fiber optic module with a guide rail;

sliding the guide tab along the guide rail;

engaging the guide tab into a stop of the guide rail; and

applying a force to the fiber optic module to maintain the guide tab in the stop.

98. (Original) The method of claim 97 further comprising:

coupling a catch of a release lever into an opening of a latch.

99. (Original) The method of claim 97 further comprising:

compressing an elastomer between module contacts of the fiber optic module and host contacts.

100. (Original) The method of claim 99 wherein

the host contacts are coupled to a host printed circuit board.

101. (Original) The method of claim 99 wherein the host contacts are part of an electrical connector coupled to a host printed circuit board.

102. (Original) A method of engaging a fiber optic module into a host system, the method comprising:

engaging a pair of guide tabs of the fiber optic module with a pair of guide rails;

sliding the guide tabs along the guide rails;

moving the guide rails and the fiber optic module closer to a plane of a host printed circuit board; and

compressing an elastomer between module contacts of the fiber optic module and host contacts of the host printed circuit board.

103. (Original) The method of claim 102 wherein the moving of the guide rails is by a lever.

104. (Original) The method of claim 102 wherein the moving of the guide rails is by a spring.

105. (Original) A system comprising:

a fiber optic module to engage a module receptacle, the fiber optic module including

an optical connector,

one or more optoelectronic devices to convert between optical signals and electrical signals,

a housing to cover the one or more optoelectronic devices, and

a guide tab coupled to the side of the housing;

and

the module receptacle including

a cage to couple to a host printed circuit board,

a guide rail to receive the guide tab of the fiber optic module,

and

a spring coupled to a top of the cage, the spring to apply a force to a top of the housing of the fiber optic module.

106. (Original) The system of claim 105 wherein the fiber optic module further includes

one or more module contacts, and

an elastomer;

the module receptacle further includes

an electrical connector having one or more host contacts;

and

the spring to apply sufficient force to the top of the

housing of the fiber optic module to compress the elastomer and form electrical connections between the one or more module contacts and the one or more host contacts.

107. (Original) The system of claim 106 wherein the one or more module contacts and the one or more host contacts are pads.

108. (Original) The system of claim 106 wherein the fiber optic module further includes

a ground contact and a power contact extending beyond the one or more module contacts; and

the module receptacle further includes

a ground contact and a power contact to make an electrical connection with the ground contact and power contact of the fiber optic module prior to the one or more module contacts making electrical connections with the one or more host contacts.

109. (Original) The system of claim 108 wherein the one or more module contacts, the one or more host contacts, the ground contact and the power contact of the module receptacle, and the ground contact and power contact of the fiber optic module are pads.

110. (Original) The system of claim 108 wherein the one or more module contacts and the one or more host contacts are pads, the ground contact and the power contact of the module receptacle are sockets, and the ground contact and power contact of the fiber optic module are pins.

111. (Original) A system comprising:
a fiber optic module including
an optical connector,
one or more optoelectronic devices to convert between optical signals and electrical signals,
a housing to cover the one or more optoelectronic devices, and
a retention stop coupled to the housing;
an electrical connector to couple to a host printed circuit board;
and
a retention mechanism to couple to the electrical connector at one end, the retention mechanism having a spring latch at an opposite end to couple to the retention stop of the fiber optic module.

112. (Original) The system of claim 111 wherein

the fiber optic module further includes
one or more module contacts, and
an elastomer having space apart conductors, the elastomer being compressible;
and the electrical connector further has one or more host contacts to make electrical connections with the one or more module contacts through the elastomer.

113. (Original) The system of claim 112 wherein
the one or more module contacts and the one or more host contacts are pads.

114. (Currently Amended) The system of claim [[11]] 111 wherein
the fiber optic module further includes
a ground contact and a power contact extending beyond the one or more module contacts; and
the electrical connector further includes
a ground contact and a power contact to make an electrical connection with the ground contact and power contact of the fiber optic module prior to the one or more module contacts making electrical connections with the one or more host contacts.

115. (Original) The system of claim 112 wherein the fiber optic module further includes
a compression stop to avoid over compression of the elastomer.

116. (Original) The system of claim 111 further comprising:
one or more guide rails to guide the fiber optic module toward the electrical connector and to engage the retention mechanism.

117. (Original) The system of claim 116 wherein the fiber optic module further includes
one or more guide tabs to engage the one or more guide rails.

118. (Original) The system of claim 111 wherein the fiber optic module further includes
one or more release levers, each of the one or more release levers including a catch;
and the system further comprises
one or more latches, each of the one or more latches having an opening to respectively receive the catch of the one or more release levers.

119-130. (Canceled)

131. (New) A fiber optic module comprising:

a base;

one or more optical fiber connectors coupled to the base, the one or more optical fiber connectors to couple to one or more optical fibers;

one or more opto-electronic devices coupled to the base in alignment with the one or more optical fiber connectors, the one or more opto-electronic devices to convert between optical signals and electrical signals; and

an array of pads coupled to the base, the array of pads to provide a parallel data connection with a host printed circuit board.

132. (New) The fiber optic module of claim 131 further comprising:

a compressible interposer coupled to the array of pads, the compressible interposer having a plurality of spaced apart conductors to electrically couple to the array of pads.

133. (New) The fiber optic module of claim 132, wherein

the spaced apart conductors of the compressible interposer are micro-filaments.

134. (New) The fiber optic module of claim 132, wherein the spaced apart conductors of the compressible interposer are metal columns.

135. (New) The fiber optic module of claim 131, wherein the array of pads provide the parallel data connection with the host printed circuit board through a plurality of spaced apart conductors of an interposer electrically coupled to the array of pads.

136. (New) The fiber optic module of claim 131 further comprising:

a housing coupled to the base.

137. (New) The fiber optic module of claim 136 further comprising:

a retention stop coupled to the housing, the retention stop to couple to a latch of a module receptacle to retain the fiber optic module therein.

138. (New) The fiber optic module of claim 131 further comprising:

a compression stop coupled to the base, the compression stop to avoid over-compression of the compressible interposer.

139. (New) The fiber optic module of claim 131 further comprising:

a power contact extending beyond a surface of the array of pads; and

a ground contact extending beyond a surface of the power contact and the surface of the array of pads,

wherein the power contact and the ground contact to make electrical connections prior to the array of pads making electrical connections.

140. (New) The fiber optic module of claim 139, wherein the power contact and the ground contact are pins.

141. (New) The fiber optic module of claim 139, wherein the power contact and the ground contact are pads.

142. (New) The fiber optic module of claim 131 further comprising:

at least one release lever having a catch to engage an opening in at least one latch of the module receptacle.

143. (New) The fiber optic module of claim 131, wherein the array of pads are electrically coupled to the one or more opto-electronic devices.

144. (New) An apparatus comprising:

a fiber optic module including

a housing,

one or more optical fiber connectors extending from a front of the housing, the one or more optical fiber connectors to couple to one or more optical fibers,

one or more opto-electronic devices mounted in the housing, the one or more opto-electronic devices to convert between optical signals and electrical signals, and

an array of pads extending from the housing, the array of pads to provide a parallel data connection with a host printed circuit board;

and

a compressible interposer to couple to the fiber optic module, the compressible interposer having a plurality of spaced apart conductors to couple to the array of pads of the fiber optic module.

145. (New) The apparatus of claim 144, wherein

the fiber optic module further includes

a retention stop coupled to the housing, the retention stop to couple to a latch of a module receptacle to retain the fiber optic module

therein.

146. (New) The apparatus of claim 144, wherein the plurality of spaced apart conductors of the compressible interposer are micro-filaments.

147. (New) The apparatus of claim 144, wherein the plurality of the spaced apart conductors of the compressible interposer are metal columns.

148. (New) The apparatus of claim 144, wherein the fiber optic module further includes

a compression stop coupled to the housing, the compression stop to avoid over-compression of the compressible interposer.

149. (New) The apparatus of claim 144, wherein the fiber optic module further includes

a power contact extending beyond a surface of the array of pads; and

a ground contact extending beyond a surface of the power contact and the surface of the array of pads,

wherein the power contact and the ground contact to make electrical connections prior to the array of pads making electrical connections.

150. (New) The apparatus of claim 149, wherein the power contact and the ground contact are pins.

151. (New) The apparatus of claim 149, wherein the power contact and the ground contact are pads.

152. (New) The apparatus of claim 144, wherein the fiber optic module further includes at least one release lever having a catch to engage an opening in at least one latch of the module receptacle.

153. (New) The apparatus of claim 144, wherein the array of pads are electrically coupled to the one or more opto-electronic devices.